

Date: Thursday, 7/13/2006 3:24:33 PM  
User: Kim Johnston

## Process Sheet

Customer	CU-DAR001 Dart Helicopters Services	Drawing Name	SADDLE FITTING, AFT (OUTBOARD/INBOARD)		
Job Number	27889	Part Number	D2573		
Estimate Number	10533	Drawing Number	D2573 REV E		
P.O. Number	N/A	Project Number	N/A		
This Issue	7/13/2006	S.O. No.	N/A		
Prsht Rev.	NC	Type	MACHINED PARTS		
First Issue	N/A	Material	N/A		
Previous Run	27763	Due Date	8/9/2006	Qty:	16 Um: Each
Written By	<i>Seq 1 comment relay</i>				
Checked & Approved By	<i>JK 06.07.13</i>				
Comment	Est: 1 As Per RevE 06-01-27 JLM				

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :	
1.0	D6101007	7075-T7351 8.25X7.75X2.5	
		Comment: Qty.: 1.0000 Each(s)/Unit Total : 16.0000 Each(s) 7075-T7351 8.25X7.75X2.5 Make from D6101-007 billet for D2573 Ensure that grain is along 7.75" length Batch No: <i>B23941</i>	<i>E/S.G. 06/07/21</i>
2.0	HAAS1	HAAS CNC VERTICAL MACHINING #1	
		Comment: HAAS CNC VERTICAL MACHINING #1 Program Batch No. <i>87889</i> Double check by: <i>J.F.</i>	
		1-Machine Step No 1 per Folio FA051 and inspect per attached Dimension Sheets 2-Machine Step No 2 per Folio FA051 and inspect per attached Dimension Sheets 3-Machine Step No 3 per Folio FA051 and inspect per attached Dimension Sheets 4-Deburr and remove all machining marks 5-Tumble to remove sharp edges.	<i>OP</i>
3.0	MILLING CONV.	CONVENTIONAL MILLING MACHINE	
		Comment: CONVENTIONAL MILLING MACHINE Machine keyway as per dwg D2573 & D2574	<i>J.G./Ep 06/07/29</i>
4.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE	
		Comment: INSPECT PARTS AS THEY COME OFF MACHINE	<i>J.G./Ep 06/07/29</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			
06-07-24	8 2D	Saddle out of tolerance ① Flange is 0.107 nominal is 0.125 ② Bore is 1.990 nominal is 2.001 <sup>+0.010</sup> <sub>-0.000</sub> SCRAP - see attached e-mail	PAT per QSF 042 06-07-24	SCRAP part DESTROY and replace	TP 06/07/24	TP 06/07/24	PH per QSF 042 06-07-24	06-07-24

Part No: \_\_\_\_\_

PAR #: \_\_\_\_\_

Fault Category: \_\_\_\_\_

NCR: Yes

No

DQA: 

Date: 06/08/09

NOTE: Date &amp; initial all entries

QA: N/C Closed: \_\_\_\_\_

Date: \_\_\_\_\_

Date: Thursday, 7/13/2006 3:24:34 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SADDLE FITTING, AFT (OUTBOARD/INBOARD)

Job Number: 27889

Part Number: D2573

Job Number:



Seq. #:	Machine Or Operation:	Description :
5.0	QC8	SECOND CHECK
	Comment: SECOND CHECK	<i>ML 06/08/01 20</i>
6.0	HAND FINISHING1	HAND FINISHING RESOURCE #1
	Comment: HAND FINISHING RESOURCE #1 Acid etch and Alodine as per QSI 005 4.1	<i>FC 06/08/01 (20)</i>
7.0	POWDER COATING	POWDER COATING
	Comment: POWDER COATING Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3	<i>Cl. m 06-08-03 (20)</i>
8.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION
	Comment: INSPECT POWDER COAT	
9.0	PACKAGING 1	PACKAGING RESOURCE #1
	Comment: PACKAGING RESOURCE #1 Identify and Stock Location: ST480	<i>LB 06/08/04 (20)</i>
10.0	DC	DOCUMENT CONTROL
	Comment: DOCUMENT CONTROL Inspection Level 21	<i>(20) 06/08/05</i>

Job Completion



*U 06/08/05*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE: Date & initial all entries

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

DART AEROSPACE LTD				Work Order: 27889	
Description: Saddle, Aft Outboard				Part Number: D2573	
Inspection Dwg: D2573 Rev. E				Page 1 of 1	

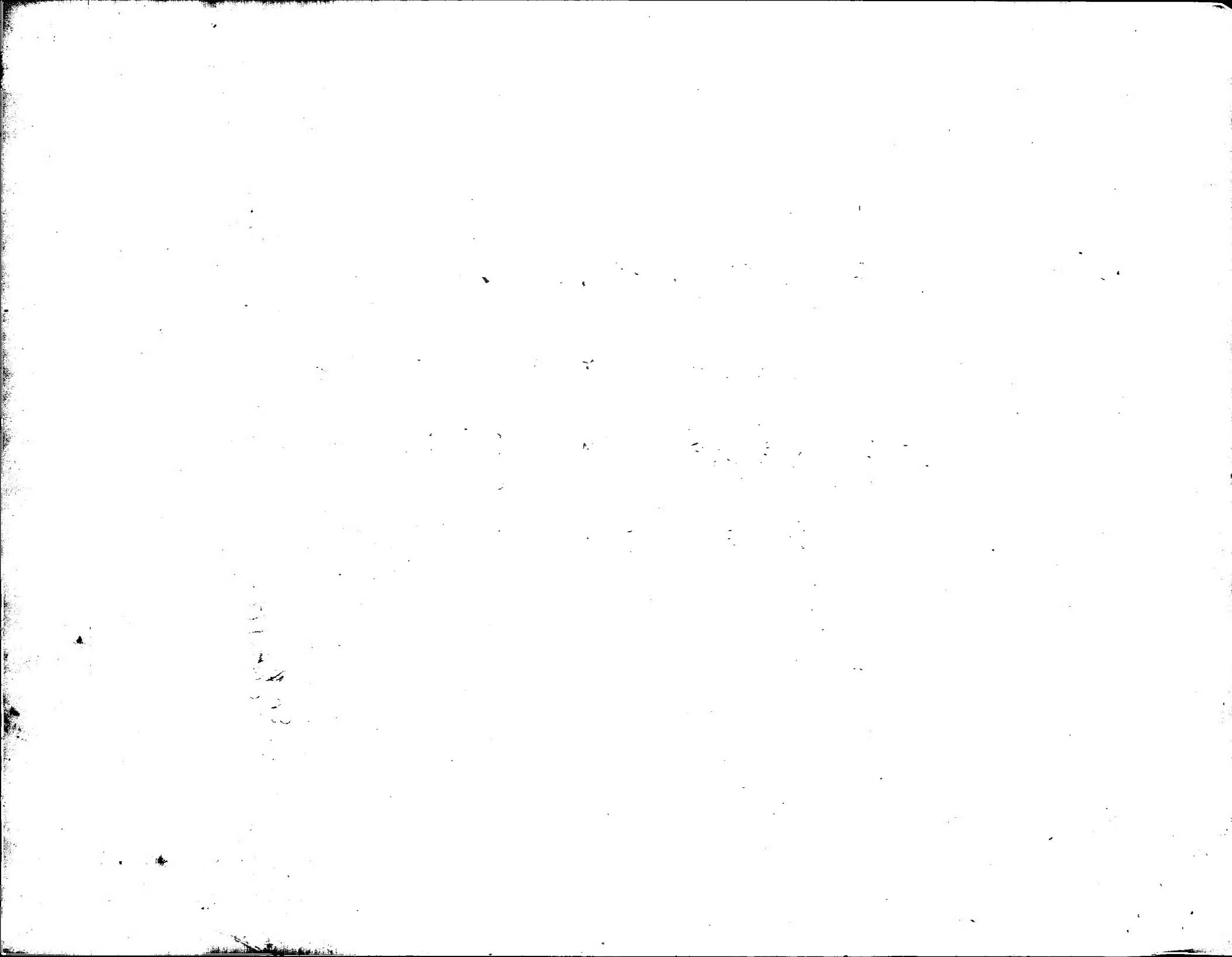
Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.745	1.745	1.746	1.748		
C	3.495	3.505		3.498	3.499	3.500	3.497		
D	1.745	1.755		1.745	1.747	1.746	1.748		
E	7.990	8.010		8.001	8.004	8.002	8.003		
F	0.490	0.510		0.498	0.497	0.496	0.497		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.259		
H	0.375	0.380	DT8684	0.377	0.377	0.377	0.377		
I	0.490	0.510		0.497	0.499	0.501	0.497		
J	1.174	1.184		1.179	1.179	1.178	1.178		
K	0.558	0.578		0.565	0.564	0.565	0.559		
L	1.174	1.184		1.179	1.175	1.178	1.178		
M	1.365	1.375		1.366	1.370	1.366	1.368		
N	2.495	2.505		2.497	2.499	2.495	2.500		
O	4.119	4.129		4.120	4.119	4.120	4.120		
P	0.115	0.135		0.124	0.125	0.125	0.118		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.251	0.250	0.257	0.248		
S	0.115	0.135		0.125	0.121	0.124	0.127		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.239	0.236	0.240	0.240		
W	0.115	0.135		0.123	0.122	0.125	0.129		
X	0.308	0.313		0.309	0.309	0.309	0.309		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.368	0.370	0.368	0.368		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.624	0.622	0.622	0.628		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.244	0.248	0.244	0.246		
AE	1.500	1.520		1.511	1.513	1.513	1.509		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.250	0.246	0.248	0.250		
AI	2.000	2.020		2.001	2.003	2.003	2.000		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	EP	Audited by:	TNL
Date:	06/07/25	Date:	06/07/27

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	SPW

1.509  
L.000



DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4 <sup>8</sup>		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.747	1.747	1.749	1.748		
C	3.495	3.505		3.500	3.498	3.498	3.500		
D	1.745	1.755		1.747	1.747	1.749	1.748		
E	7.990	8.010		8.002	8.003	8.002	8.002		
F	0.490	0.510		0.493	0.491	0.496	0.496		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.257		
H	0.375	0.380	DT8684	0.377	0.377	0.377	0.377		
I	0.490	0.510		0.496	0.502	0.498	0.497		
J	1.174	1.184		1.178	1.177	1.179	1.179		
K	0.558	0.578		0.561	0.562	0.565	0.563		
L	1.174	1.184		1.178	1.177	1.179	1.179		
M	1.365	1.375		1.368	1.366	1.369	1.368		
N	2.495	2.505		2.497	2.498	2.497	2.499		
O	4.119	4.129		4.122	4.122	4.121	4.122		
P	0.115	0.135		0.125	0.123	0.126	0.124		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.253	0.250	0.253	0.252		
S	0.115	0.135		0.126	0.124	0.124	0.123		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.239	0.240	0.238	0.237		
W	0.115	0.135		0.123	0.126	0.125	0.126		
X	0.308	0.313		0.309	0.309	0.309	0.309		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.365	0.369	0.364	0.365		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.628	0.627	0.626	0.626		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.247	0.245	0.244	0.248		
AE	1.500	1.520		1.513	1.510	1.514	1.514		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.250	0.249	0.250	0.247		
AI	2.000	2.020		2.003	2.000	2.003	2.003		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	EP	Audited by:	JML
Date:	06/07/26	Date:	06/07/27

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	JML

DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4 <sup>12</sup>		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.747	1.745	1.745	1.747		
C	3.495	3.505		3.500	3.500	3.499	3.499		
D	1.745	1.755		1.747	1.745	1.745	1.747		
E	7.990	8.010		8.002	8.001	8.003	8.003		
F	0.490	0.510		0.495	0.500	0.495	0.498		
G	0.257	0.262	DT8683	0.255	0.255	0.255	0.255		
H	0.375	0.380	DT8684	0.377	0.374	0.377	0.377		
I	0.490	0.510		0.498	0.496	0.498	0.499		
J	1.174	1.184		1.179	1.175	1.177	1.178		
K	0.558	0.578		0.564	0.560	0.560	0.563		
L	1.174	1.184		1.179	1.175	1.177	1.178		
M	1.365	1.375		1.369	1.367	1.369	1.369		
N	2.495	2.505		2.498	2.496	2.497	2.495		
O	4.119	4.129		4.123	4.122	4.123	4.123		
P	0.115	0.135		0.125	0.124	0.125	0.123		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.252	0.252	0.253	0.250		
S	0.115	0.135		0.123	0.122	0.123	0.123		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.242	0.238	0.237	0.236		
W	0.115	0.135		0.127	0.126	0.126	0.139		
X	0.308	0.313		0.309	0.308	0.310	0.308		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.369	0.365	0.365	0.363		
AA	0.470	0.530		0.560	0.560	0.560	0.560		
AB	0.615	0.635		0.628	0.626	0.628	0.626		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.245	0.246	0.244	0.244		
AE	1.500	1.520		1.511	1.513	1.514	1.512		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.254	0.249	0.246	0.247		
AI	2.000	2.020		2.001	2.002	2.003	2.002		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	Eh	Audited by:	JML
Date:	06/07/01	Date:	06/08/01

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	JML

DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev. E and record below:

Dim	Min	Max	Go/No Go Gauge	Recorded Actual Dimensions				By	Date
				1	2	3	4 1/2		
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.746	1.746	1.746	1.746		
C	3.495	3.505		3.501	3.499	3.498	3.497		
D	1.745	1.755		1.746	1.746	1.746	1.747		
E	7.990	8.010		8.004	8.002	8.001	8.000		
F	0.490	0.510		0.496	0.499	0.497	0.498		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.259		
H	0.375	0.380	DT8684	0.377	0.379	0.377	0.377		
I	0.490	0.510		0.499	0.500	0.500	0.499		
J	1.174	1.184		1.179	1.179	1.179	1.179		
K	0.558	0.578		0.564	0.561	0.569	0.568		
L	1.174	1.184		1.179	1.179	1.180	1.180		
M	1.365	1.375		1.369	1.368	1.367	1.369		
N	2.495	2.505		2.499	2.496	2.497	2.498		
O	4.119	4.129		4.123	4.123	4.123	4.123		
P	0.115	0.135		0.124	0.123	0.122	0.123		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.251	0.252	0.251	0.251		
S	0.115	0.135		0.121	0.121	0.120	0.121		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.240	0.239	0.238	0.237		
W	0.115	0.135		0.125	0.125	0.124	0.124		
X	0.308	0.313		0.309	0.309	0.310	0.310		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.367	0.367	0.367	0.368		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.626	0.625	0.624	0.625		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.245	0.246	0.245	0.249		
AE	1.500	1.520		1.572	1.512	1.513	1.513		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.247	0.256	0.250	0.250		
AI	2.000	2.020		2.002	2.001	2.002	2.002		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	EP/S.G	Audited by:	TML
Date:	06/07/09	Date:	06/08/01

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	SPW

DART AEROSPACE LTD	Work Order:	27889
Description: Saddle, Aft Outboard	Part Number:	D2573
Inspection Dwg: D2573 Rev. E		Page 1 of 1

Inspect dimensions highlighted on inspection sheet drawing D2573 Rev..E and record below:

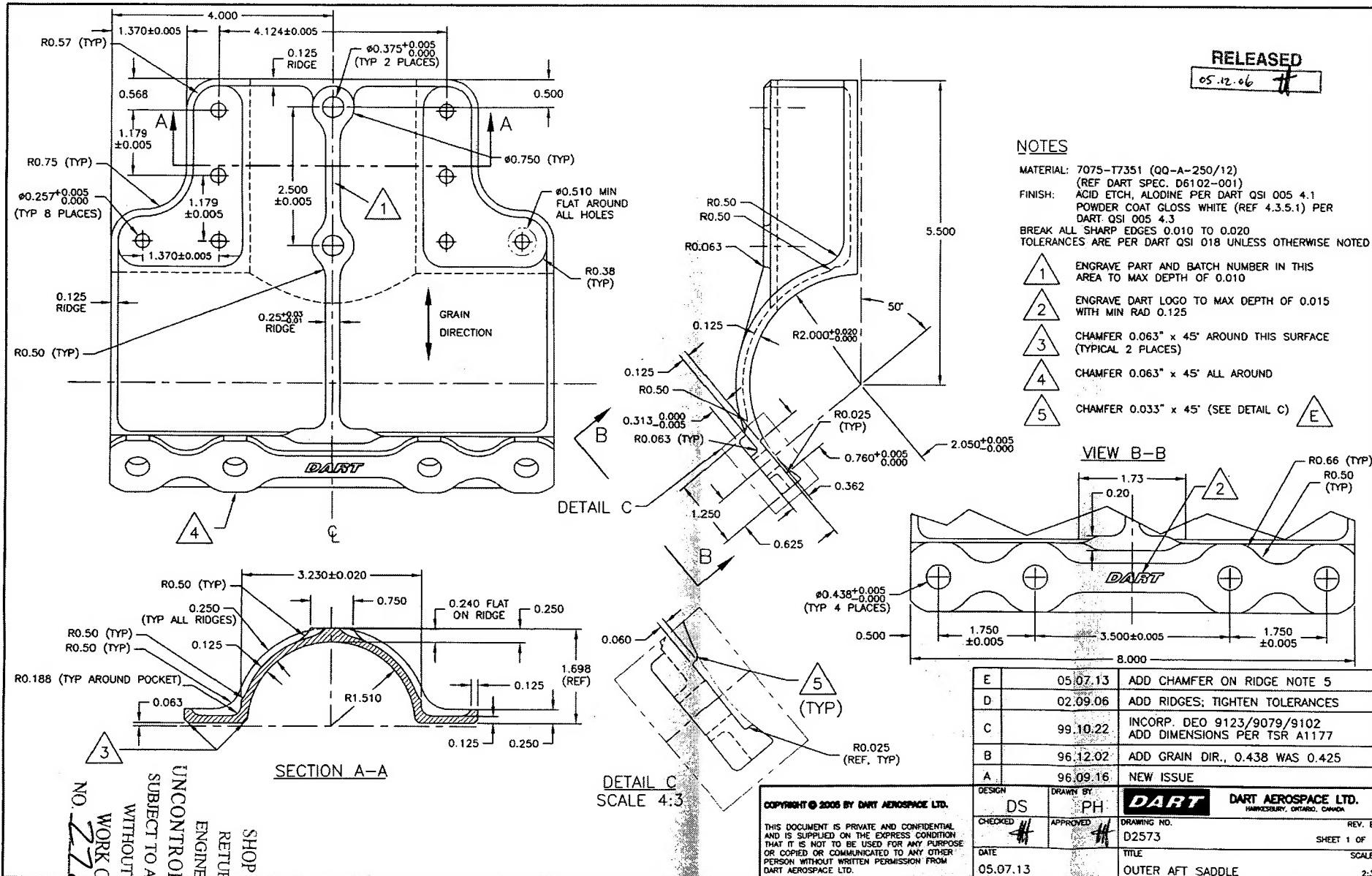
				Recorded Actual Dimensions					
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	By	Date
A	0.438	0.443	DT8682	0.441	0.441	0.441	0.441		
B	1.745	1.755		1.747	1.747	1.748	1.748		
C	3.495	3.505		3.499	3.497	3.496	3.497		
D	1.745	1.755		1.747	1.746	1.747	1.746		
E	7.990	8.010		8.001	8.003	8.000	8.001		
F	0.490	0.510		0.499	0.498	0.497	0.499		
G	0.257	0.262	DT8683	0.259	0.259	0.259	0.259		
H	0.375	0.380	DT8684	0.377	0.377	0.377	0.377		
I	0.490	0.510		0.500	0.498	0.497	0.499		
J	1.174	1.184		1.179	1.180	1.179	1.178		
K	0.558	0.578		0.568	0.567	0.568	0.567		
L	1.174	1.184		1.179	1.180	1.179	1.178		
M	1.365	1.375		1.374	1.372	1.374	1.372		
N	2.495	2.505		2.500	2.499	2.499	2.498		
O	4.119	4.129		4.122	4.123	4.123	4.122		
P	0.115	0.135		0.125	0.127	0.128	0.127		
Q	0.115	0.135		0.135	0.135	0.135	0.135		
R	0.240	0.260		0.251	0.250	0.252	0.251		
S	0.115	0.135		0.120	0.122	0.123	0.124		
T	0.178	0.198		0.188	0.188	0.188	0.188		
U	3.210	3.250		3.230	3.230	3.230	3.230		
V	0.230	0.250		0.239	0.238	0.237	0.236		
W	0.115	0.135		0.126	0.127	0.128	0.127		
X	0.308	0.313		0.310	0.310	0.310	0.310		
Y	0.760	0.765		0.765	0.765	0.765	0.765		
Z	0.352	0.372		0.364	0.364	0.362	0.364		
AA	0.470	0.530		0.500	0.500	0.500	0.500		
AB	0.615	0.635		0.624	0.624	0.628	0.627		
AC	0.053	0.073		0.063	0.063	0.063	0.063		
AD	0.240	0.260		0.245	0.246	0.245	0.246		
AE	1.500	1.520		1.513	1.513	1.512	1.513		
AF	0.115	0.135		0.135	0.135	0.135	0.135		
AG	0.240	0.280		0.260	0.260	0.260	0.260		
AH	0.240	0.260		0.251	0.249	0.248	0.247		
AI	2.000	2.020		2.003	2.002	2.001	2.000		
AJ	0.023	0.043		0.030	0.030	0.030	0.030		
Accept/Reject									

Measured by:	J.G	Audited by:	J.W.
Date:	06/07/30	Date:	06/08/01

Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.09.26	Re-format; Added Rev. D	KJ	
C	02.10.11	Re-format; Added DT8682, DT8683, DT8684	KJ	
D	05.05.05	Added dimension AI	KJ/RF	
E	05.12.05	Added dimension AJ	KJ/JLM	JLM

RELEASED

05.12.06 #



SECTION A-A  
DETAIL C  
SCALE 4:3  
NO. 27889  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
ENGINEERING  
UNCONTROLLED COPY  
SHOP COPY  
RETURN TO  
DART AEROSPACE LTD.

**Peter Hum**

---

**From:** David Shepherd [dshepherd@dartaero.com]  
**Sent:** July 24, 2006 12:18 PM  
**To:** 'Peter Hum'  
**Subject:** RE: d2573 B27889 saddle out of tolerance

I agree. Better to scrap both of these parts.

David

---

**From:** Peter Hum [mailto:[phum@dartaero.com](mailto:phum@dartaero.com)]  
**Sent:** Monday, July 24, 2006 9:20 AM  
**To:** 'David Shepherd'  
**Subject:** d2573 B27889 saddle out of tolerance

David,

I have D2573 saddle out of tolerance in 2 locations.

The dimensions out of tolerance are the bore for the skidtube:

Nominal dim 2.000 (+0.010,-0.000) the measured dim is 1.990

And the thickness of the flanges:

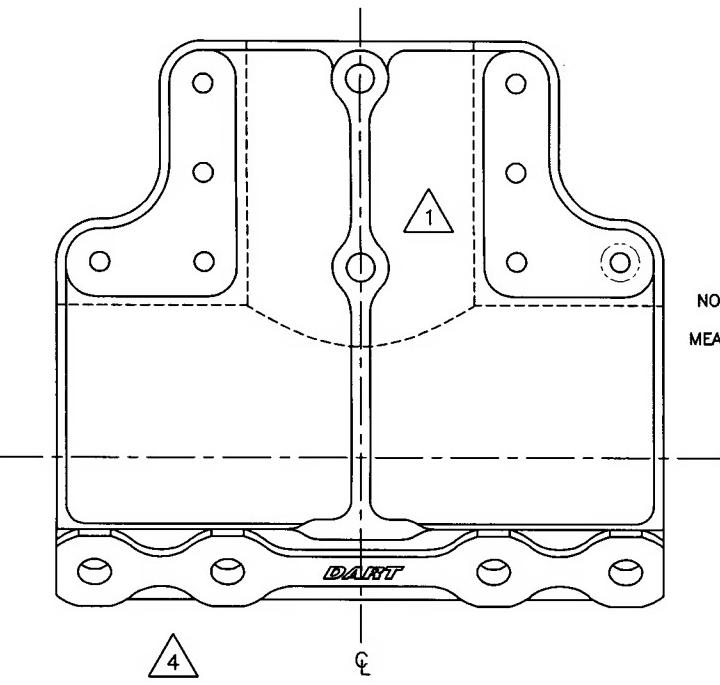
Nominal dim 0.125 the measured dim is 0.107

I've attached a sketch to show these dimensions

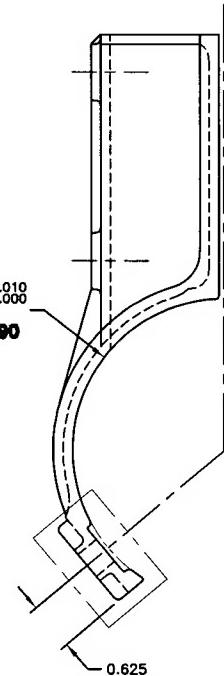
I believe this part is scrap because the saddle will have a hard time fitting the skidtube and the bearing load of the flanges has been reduced.

What should we do with this part?

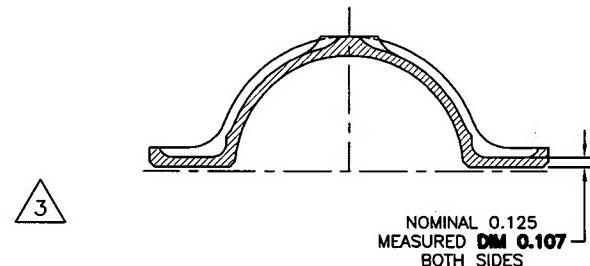
Peter <<...>>



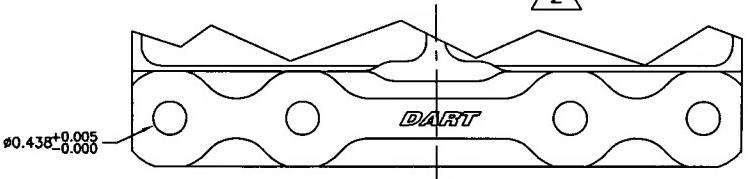
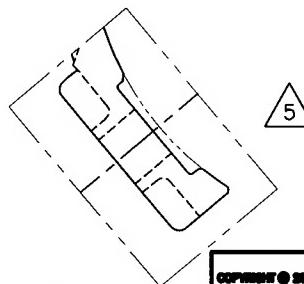
NOMINAL R<sub>2.000</sub><sup>+0.010</sup><sub>-0.000</sub>  
MEASURED DIM 1.990



0.625



NOMINAL 0.125  
MEASURED DIM 0.107  
BOTH SIDES



Ø0.438<sup>+0.005</sup><sub>-0.000</sub>

1  
2  
3  
4  
5

E

2

3

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person without written permission from  
DART Aerospace Ltd.

DESIGN	DRAWN BY	DART AEROSPACE LTD. HAMILTON, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D2573	SHEET 1 OF 1
DATE	TITLE	SCALE	
05.07.13	OUTER AFT SADDLE	2:3	